

# Foil Developments (and a few extras)

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- For VELO the NIKHEF foil is a technical masterpiece
  - In my opinion the default should be, unless we can demonstrate that we can do better, the same technology. Ideally it would be manufactured by the same team
  - We probably always have to bond a foil to box somehow
    - Massive technology effort
- Promise of different geometries naturally excites the technologically curious



- Out of the many ideas and geometries being mooted we find two major threads
  - Composite
  - AI
- See Ray's presentation



- Why do we (locally) care about the foil?
  - Useful to build small sections at an early stage
  - Focusses the mind!
- CF
  - matches aspirations of accelerator group
  - CF and plating expertise
  - Synergies with other activities
- AI
  - Need to build moulds for CF anyway
  - Machining challenge
  - Novel technologies
  - DO NOT WANT TO REPLICATE NIKHEF SOLUTION WHICH PROBABLY FORMS A KIND OF BASELINE



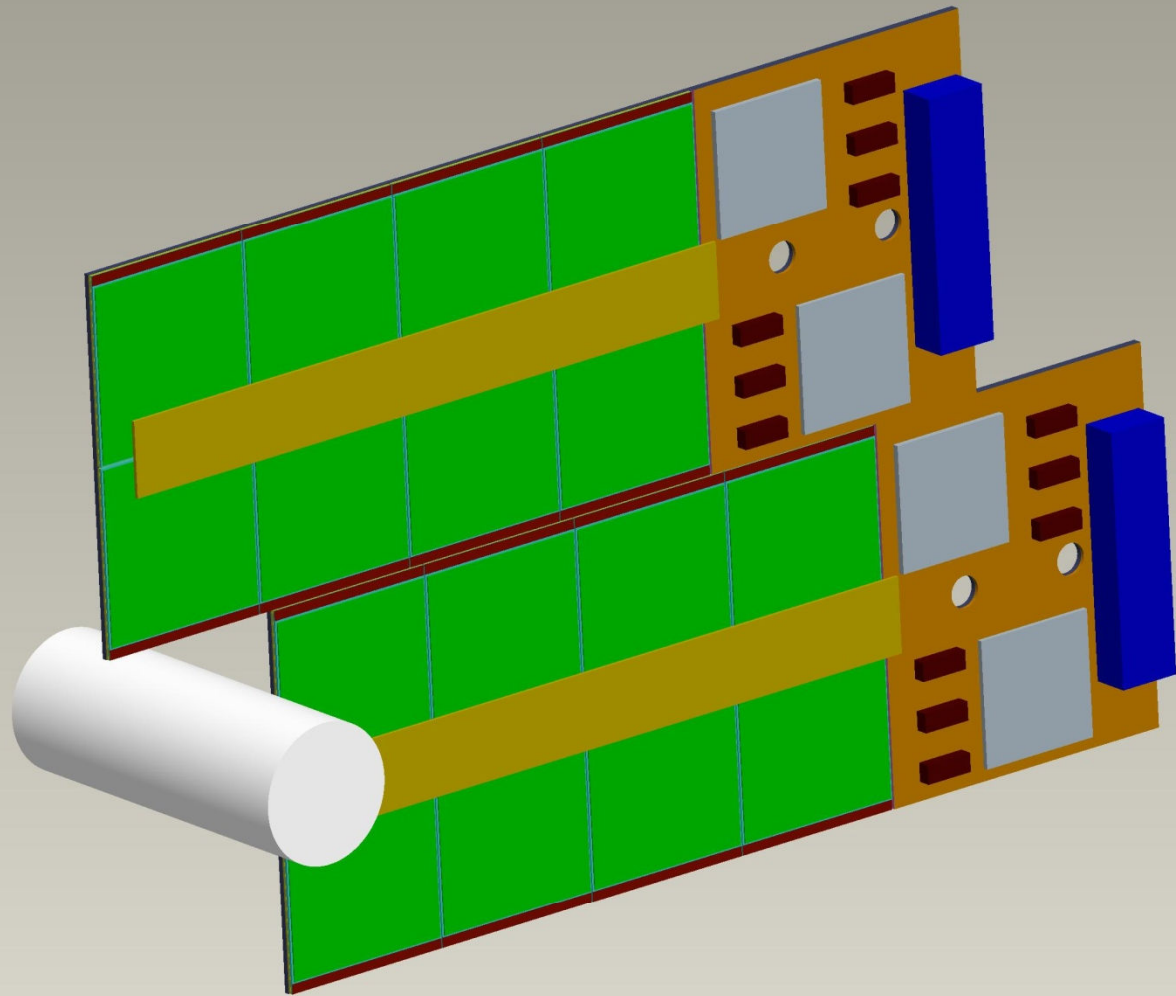
- Model U and L compatible sections
  - Important to hybrid design (comment on later)
- Manufacture small sections
  - CF (metal mould tools)
  - CF plated (metal mould tools)
  - Novel Al technology (if not porous)
  - Machined Al
- Provide demonstrators prior to LOI



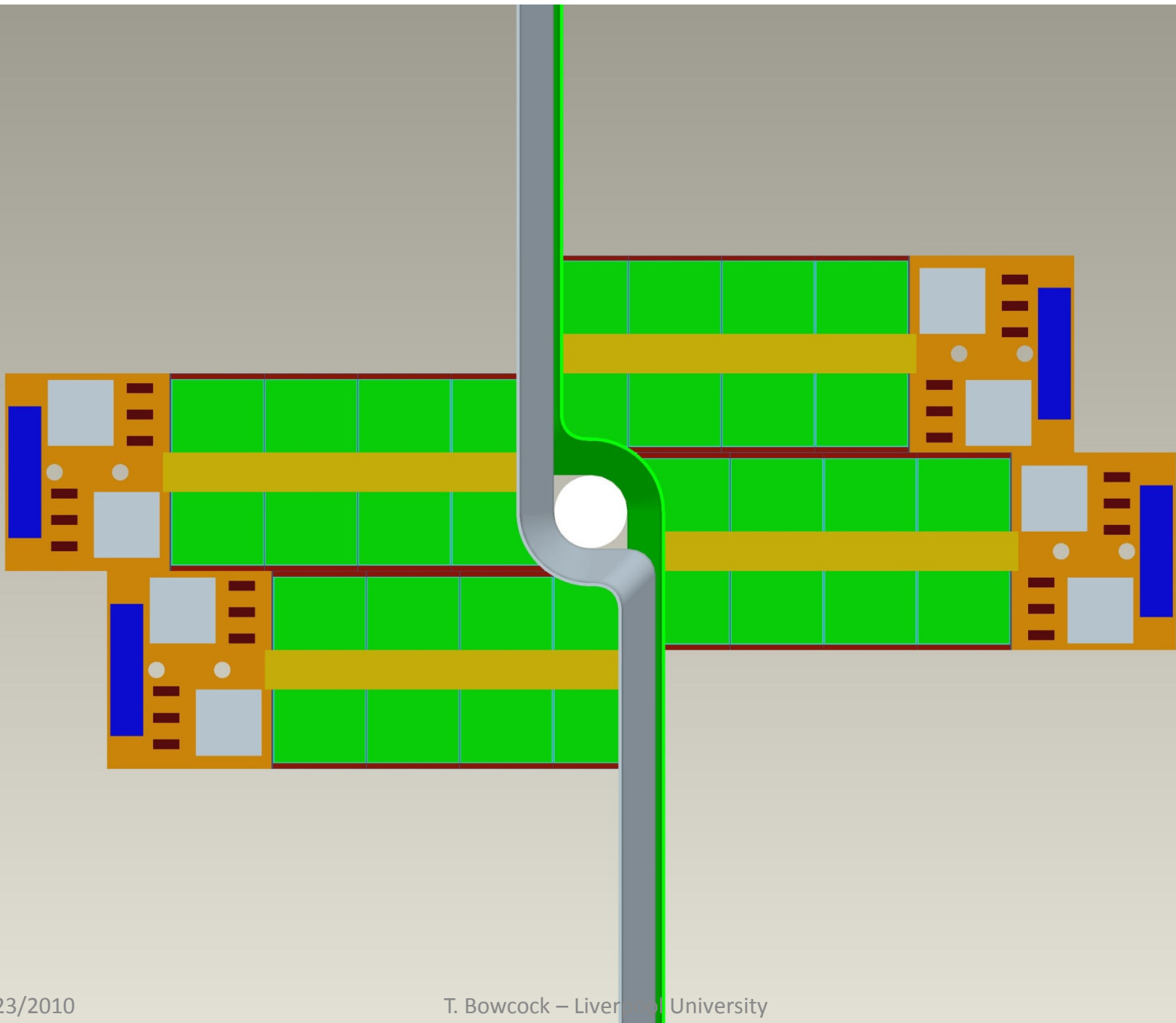
- The foil and hybrid design must be compatible
- Lots of ideas on Hybrids
  - Remember a lot of engineering work must go in to instantiate an idea. Cannot afford to fully prototype 10 different hybrids
  - Will report on the (successful) electrical performance new hybrid and sensor design (for UK ATLAS/LHCb project) at next meeting
  - Sensor Fabrication and Performance
    - Testing, irradiation and qualification

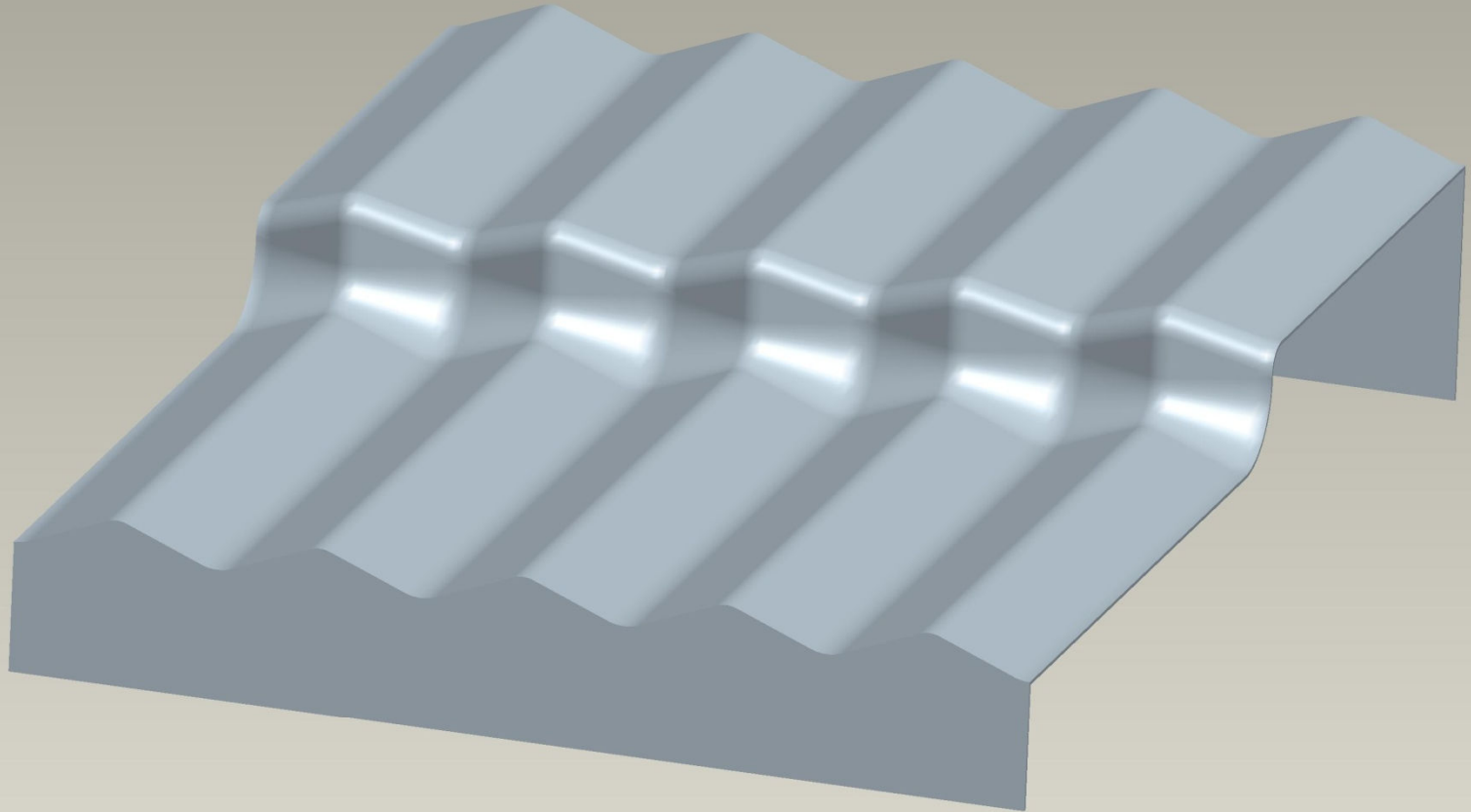


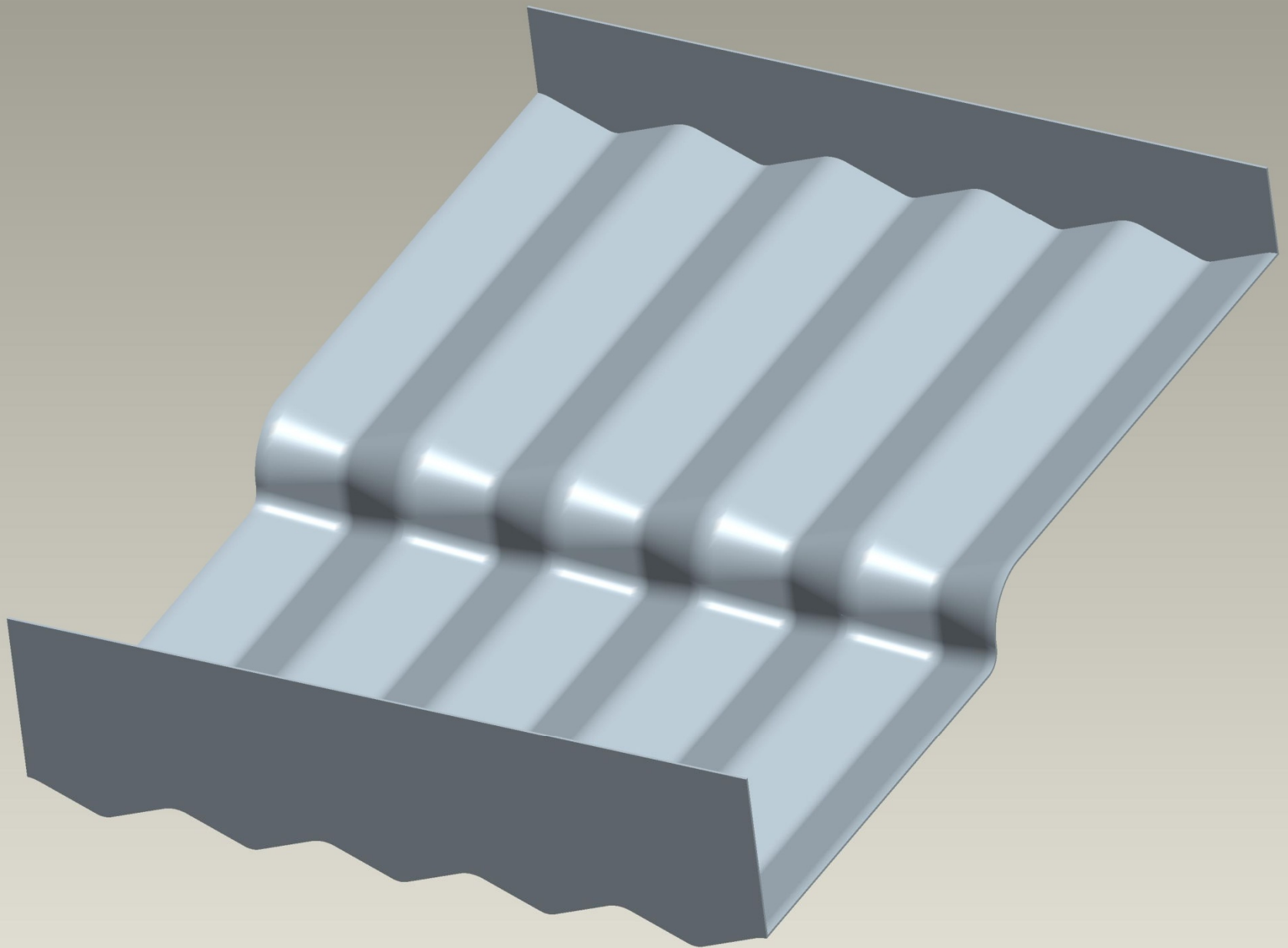
- Start looking at L shape foils
  - Representative only. Not final

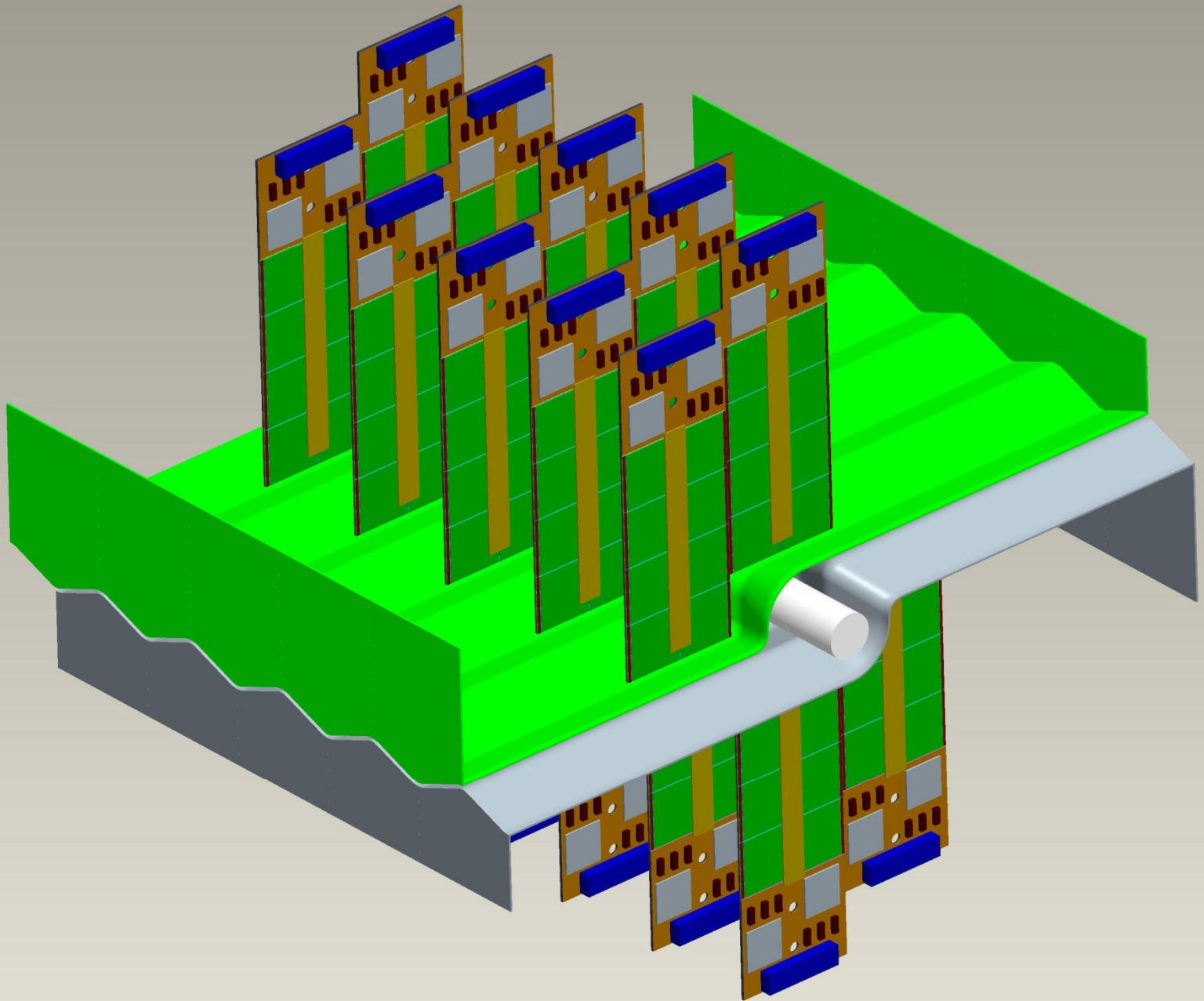


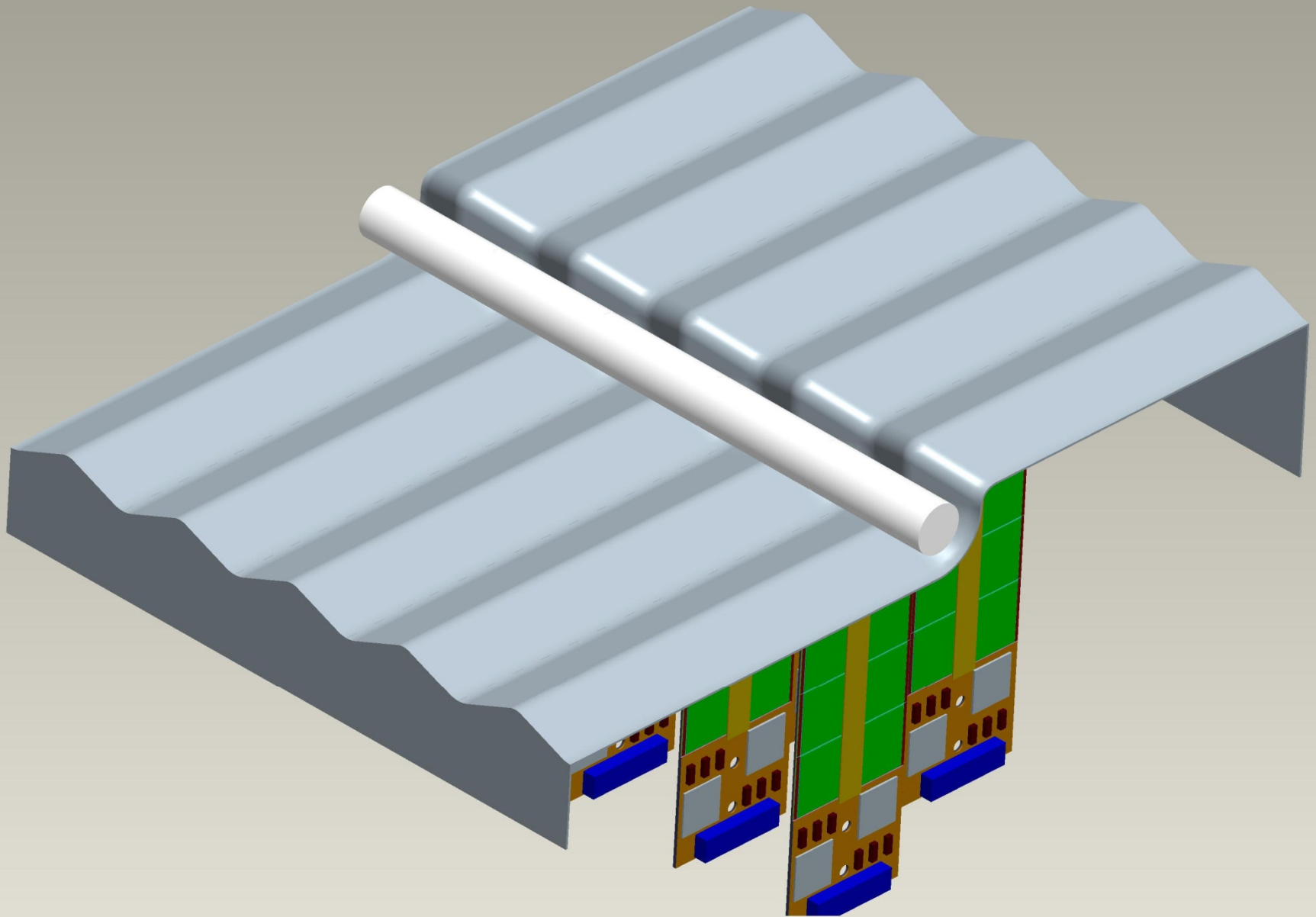


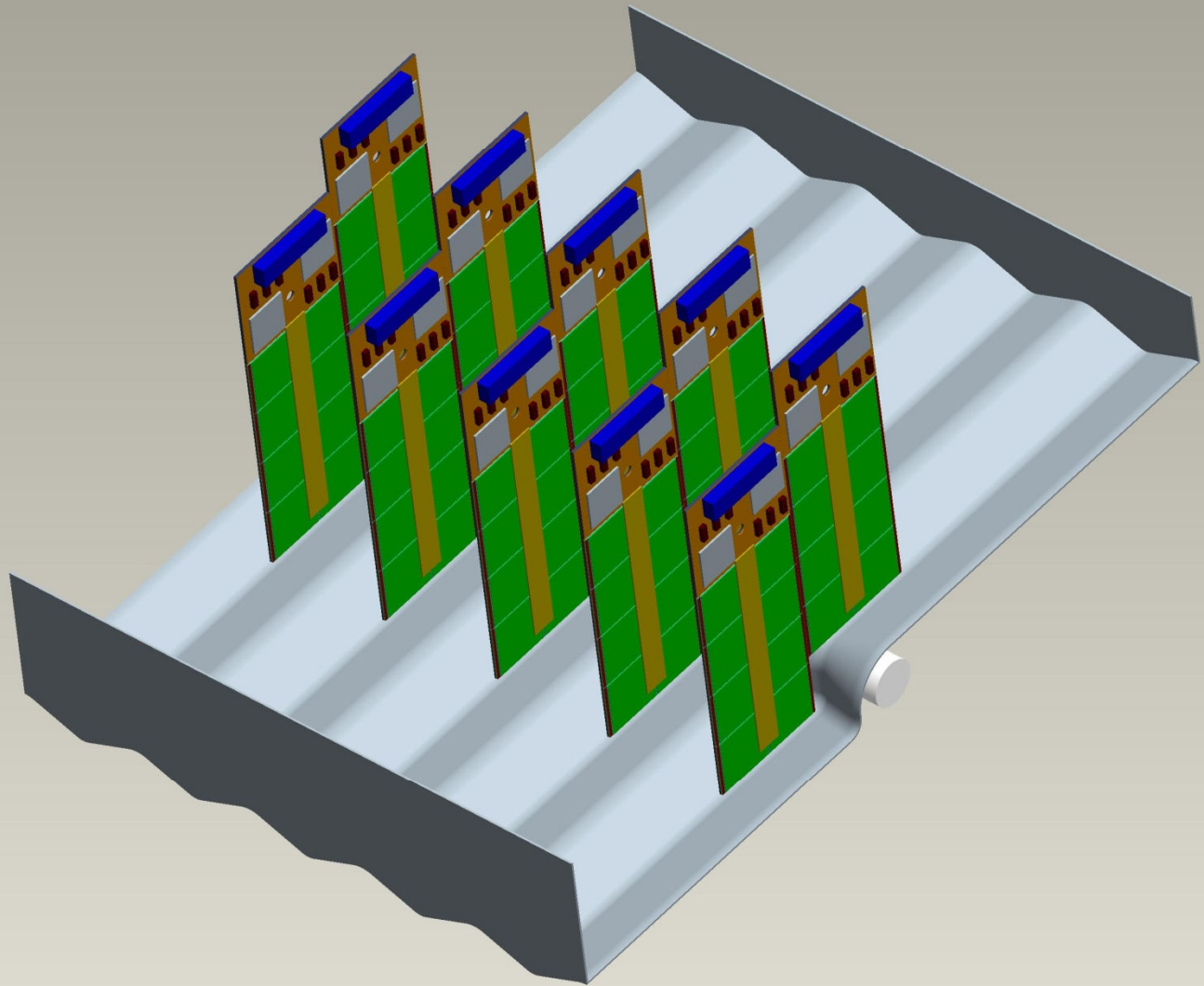














# Things we have learned

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- L shape (generally) appears “gentler”
  - Less curvature
  - Easier to manufacture
    - Machine
    - Good for more speculative technologies
- Baseline NIKHEF construction method may prove to be a lot easier than last time



- Hybrid Foil Strawmen designs becoming important
  - Specify the critical dimensions
- Go through at least one step of looking critically at designs before we start machining anything